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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/624,697

07/22/2003

Martin Christ

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EXAMINER

MOSS, KERI A

ART UNIT

PAPER NUMBER

1743

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/624,697	CHRIST ET AL.	
	Examiner	Art Unit	
	Keri A. Moss	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendment filed January 8, 2007 is hereby acknowledged. Claims 1-6 are pending.

Response to Amendment

1. Rejections under Beck and the Plotard reference have been withdrawn in light of applicant's amendments and arguments.

Rejection under Nixon has been maintained.

Claim Interpretation

2. It is the position of the office that the "no skin effect" limitation is an intended result. Therefore, a prior art reference that does not teach that there is no skin effect upon electrical induction but that otherwise meets the limitations of claim 1 will anticipate claim 1.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nixon (Non-Destructive Characterization of SiC Coated Carbon-Carbon Composites by Multiple Techniques, 24th International SAMPE Technical Conference, 1992, XP009032633). Nixon teaches that eddy current tests are known for carbon composite materials, and that the tests measure oxidation in the carbon fibers disposed within a semi-conducting SiC matrix. The skin effect measured during the testing is not revealed. It may or may not be the case, as Applicant argues, that a skin effect occurs in the eddy tests conducted by Nixon on carbon composite materials.

What is clear from a reading of Nixon is that the eddy current test is effective in providing a measurement of carbon oxidation in carbon composite materials.

Carbon composite materials are now well known where the carbon fibers or fiber bundles are randomly distributed in a ceramic matrix. The Examiner takes Official Notice of this fact. The Examiner also notes that the structural relationship between the fibers and the matrix are not set forth in the claim. And, as eddy current tests have been shown convincingly by Nixon to be effective at measuring carbon oxidation in a non-destructive manner, and as it is also well known (as is also evidenced by Nixon) that determining carbon oxidation is important in the determination of the integrity of carbon composite materials, it would be obvious to apply this eddy current test to carbon composite materials where the carbon fibers or fiber bundles are randomly distributed in the ceramic matrix. It is further recognized that the elimination of the skin effect in the testing of such materials would be inherent due to the manner in which the carbon fibers or fiber bundles are randomly distributed in the matrix.

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Nixon teaches such a semi-conducting "matrix" in his SiC ceramic coating. The interpretation of the SiC ceramic coating as a "matrix" is well within the broadest reasonable interpretation of this claim limitation as the structural relationship between the fibers and the matrix are not set forth in the claim.

Nixon discloses further matrices: CVD-carbon vs. phenolic char vs. pitch char matrixes.

The reference is silent as to the conductive characteristics of these matrixes.

Additionally, it would be helpful if the applicant provided a further understanding of the matrixes and whether they could be considered ceramic matrixes. However, the presence of the SiC ceramic matrix in the tested materials is certain.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nixon (Non-Destructive Characterization of SiC Coated Carbon-Carbon Composites by Multiple Techniques, 24th International SAMPE Technical Conference, 1992, XP009032633). Nixon teaches that eddy current tests are known for carbon composite materials, and that the tests measure oxidation in the carbon fibers disposed within a semi-conducting SiC matrix (see T14 and T16). The skin effect measured during the testing is not revealed. It may or may not be the case, as Applicant argues, that a skin effect occurs in the eddy tests conducted by Nixon on carbon composite materials.

Nixon does not disclose that the eddy test is to be performed on composite materials where carbon fibers or fiber bundles are randomly distributed in the matrix. However, what is clear from a reading of Nixon is that the eddy current test is effective in providing a measurement of carbon oxidation in carbon composite materials.

Carbon composite materials are now well known where the carbon fibers or fiber bundles are randomly distributed in a ceramic matrix. The Examiner takes Official

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Notice of this fact. The Examiner also notes that the structural relationship between the fibers and the matrix are not set forth in the claim. And, as eddy current tests have been shown convincingly by Nixon to be effective at measuring carbon oxidation in a non-destructive manner, and as it is also well known (as is also evidenced by Nixon) that determining carbon oxidation is important in the determination of the integrity of carbon composite materials, it would be obvious to apply this eddy current test to carbon composite materials where the carbon fibers or fiber bundles are randomly distributed in the ceramic matrix. It is further recognized that the elimination of the skin effect in the testing of such materials would be inherent due to the manner in which the carbon fibers or fiber bundles are randomly distributed in the matrix.

Applicant's arguments that "there is also nothing that would lead a person skilled in the art to try such eddy current measurements with a non-conducting or semi-conducting matrix" are noted, but not persuasive.

Nixon teaches such a semi-conducting "matrix" in his SiC ceramic coating. The interpretation of the SiC ceramic coating as a "matrix" is well within the broadest reasonable interpretation of this claim limitation as the structural relationship between the fibers and the matrix are not set forth in the claim.

Nixon discloses further matrices: CVI-carbon vs. phenolic char vs. pitch char matrixes. The reference is silent as to the conductive characteristics of these matrices. Additionally, it would be helpful if the applicant provided a further understanding of the matrices and whether they could be considered ceramic matrices. However, the presence of the SiC ceramic matrix in the tested materials is certain.

Response to Arguments

9. Applicant's arguments that "there is also nothing that would lead a person skilled in the art to try such eddy current measurements with a non-conducting or semi-conducting matrix" are noted, but not persuasive.

Nixon teaches such a semi-conducting "matrix" in his SiC ceramic coating. The interpretation of the SiC ceramic coating as a "matrix" is well within the broadest reasonable interpretation of this claim limitation as the structural relationship between the fibers and the matrix are not set forth in the claim.

Furthermore, as demonstrated above, Nixon uses eddy current measurements on this matrix.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keri A. Moss whose telephone number is 571-272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keri A. Moss
Examiner
Art Unit 1743

KAM 3/19/07



BRIAN R. GORDON
PRIMARY EXAMINER